

CLAIMS

1. A bar material supply device of a numerically controlled automatic lathe arranged after the numerically controlled automatic lathe having a headstock and a spindle rotatably supported on the headstock so that a front end of a bar material is inserted through a through-hole of the spindle to project from a front end of the spindle, and the front end of the bar material is machined by a tool mounted on a tool post, the bar material supply device being characterized by comprising:

a stocker to supply the bar material on an axis of the spindle;

a push rod disposed after the stocker to move back and forth on the axis of the spindle;

a push rod guide to guide the back-and-forth movement of the push rod;

a plurality of rollers arranged on both sides of the axis to hold the push rod on the axis therebetween, one of the plurality of rollers being constituted as a driving roller which is rotated by a driving body, and at least one of the other rollers excluding the driving roller being constituted as a driven roller which is rotated without any slippage with the push rod; and

rotation detection means for detecting the rotation of the driven roller.

2. The bar material supply device of the numerically controlled automatic lathe according to claim 1, characterized in that:

a base is attached to the headstock, and
the base includes the push rod which is freely
back and forth movable on the axis, the push rod guide to
guide the back-and-forth movement of the push rod, the
5 plurality of rollers to hold the push rod on the axis
therebetween, and the driving body which rotates at least
one of the plurality of rollers.

3. The bar material supply device of the
10 numerically controller automatic lathe according to claim
2, characterized in that the stocker includes a storage
unit to store the material, and a supply mechanism to
supply the material on the axis of the spindle from the
stocker, and at least one of the storage unit and the
15 supply mechanism is disposed in the base.

4. The bar material supply device of the
numerically controlled automatic lathe according to any
one of claims 1 to 3, characterized by further comprising
20 slipping means for generating slippage between the
driving body and the push rod when the back-and-forth
movement of the push rod is regulated.

5. The bar material supply device of the
25 numerically controlled automatic lathe according to claim
4, characterized in that the driving roller is rotatably
disposed with respect to a rotary shaft of the driving
body, and the slipping means includes a rotor which is
rotated integrally with the rotary shaft, and pressing
30 means for relatively pressing the rotor and the driving

roller by predetermined pressing force.

6. The bar material supply device of the numerically controlled automatic lathe according to any one of claims 1 to 5, characterized by further comprising detection means for detecting a front end of the bar material before the stocker.

7. The bar material supply device of the numerically controlled automatic lathe according to any one of claims 1 to 6, characterized by further comprising retreatment regulation means for regulating the movement of the push rod when the other end of the push rod retreats to a predetermined retreating position.

15

8. The bar material supply device of the numerically controlled automatic lathe according to any one of claims 1 to 7, characterized by further comprising advancing regulation means for regulating the movement of the push rod when one end of the push rod advances to a predetermined advancing position.

20

9. The bar material supply device of the numerically controlled automatic lathe according to any one of claims 1 to 8, characterized in that the bar material has a sectional shape of an end material or a polygon.

25

10. The bar material supply device of the numerically controlled automatic lathe according to any

30

one of claims 1 to 9, characterized by further comprising, on the axis of the spindle, a standby unit which causes the bar material sent from the stocker to temporarily wait in a contact state with the push rod,
5 and bar material holding means having a positioning unit to position the bar material on the spindle axis.